

# WILEY ELECTRICAL



# ELECTRONICS ENGINEERING DICTIONARY



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# WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY

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**emphasizer** 1. An electric network which serves to provide emphasis (1). 2. An electric network which serves to provide emphasis (2). Also called **preemphasis network**.

**empiric** Same as **empirical**.

**empirical** Based on, or depending upon observation, experience, or experimentation, as opposed to theory. Also spelled **empiric**.

**empty band** 1. A band which is not in use. 2. A band which is not occupied. 3. An energy band which is not occupied by any electrons.

**EMR** Abbreviation of **electron magnetic resonance**.

**EMS** 1. Abbreviation of **electromagnetic susceptibility**. 2. Abbreviation of **Expanded Memory Specification**. 3. Abbreviation of **event-management system**.

**emu** Abbreviation of **electromagnetic system of units**.

**emulation** 1. The use of an emulator. 2. The function of an emulator.

**emulation mode** A hardware and/or software operation mode in which another device and/or software is being emulated. For instance, a printer which emulates another printer, so as to be compatible with existing software.

**emulator** Computer hardware and/or software which is designed to work exactly like another. Seen, for instance, in printer emulation, so that a printer made by one manufacturer is able to work with the software intended for a printer of a different manufacturer. Another example is the design of a computer to run on software intended for another.

**EMV** Abbreviation of **electromagnetic vulnerability**. Same as **electromagnetic susceptibility**.

**enable** To turn on, or to put into operation. May refer to a component, device, circuit, piece of equipment, function, program, or system.

**enable pulse** An pulse that turns on, puts into operation, or prepares for a subsequent action. May refer to a component, circuit, device, piece of equipment, function, program, or system.

**enabled** Turned on, or operating. May refer to a component, circuit, device, piece of equipment, function, program, or system.

**enamel** A glass-like coating utilized to provide a hard and/or glossy finish. May be used, for instance, for insulation and/or corrosion protection.

**enameled wire** Wire which has a baked-on enamel film, which provides insulation. May be used, for instance, in coils.

**encapsulant** That which serves to **encapsulate** (2). For instance, a wax, a plastic, or a ceramic.

**encapsulate** 1. To embed or incorporate into something else. 2. To encase or embed in a surrounding mass or enclosure which houses and protects. For instance, an electronic component may be encapsulated in plastic, to insulate and protect from moisture. Such a plastic would usually be in a molten state when applied to the component, then let solidify for a snug fit.

**Encapsulated PostScript** A file format for importing and exporting Postscript files. Its abbreviation is **EPS**.

**encapsulation** 1. The process of applying an encapsulant. May be accomplished, for example, by dipping a component or device in molten glass, then letting cool. 2. In object-oriented programming, the hiding of the implementation details of an object. The services the object provides are defined and accessible, but their internal workings are not. Also called **information hiding** (2). 3. A technique which enables a network to send data utilizing one protocol, through another network using different protocol. It does so by encapsulating packets using one network protocol within packets being transmitted through the other network. Also called **tunneling** (2).

**encipher** Same as **encode** (2).

**enclosure** 1. That which serves to house something else. instance, a cabinet which holds an apparatus. 2. A cabinet designed to house one or more speaker units. Two common designs are acoustic reflex and acoustic suspension. In a speaker system, a specialized speaker such as a woofer or tweeter may have its own enclosure, helping enhance performance. Also called **speaker enclosure**, or **loudspeaker enclosure**. 3. Same as **email attachment**.

**encode** 1. To express information utilizing a code. 2. To scramble information, such as data, in a manner which those with a key can decipher. Usually used for security purposes. Also called **encrypt**, **encipher**, **code** (4), **scramble** (1). 3. To write a set of computer instructions.

**encoded** Also called **coded**. 1. Information, such as data, which is in the form of a code. Also called **encrypted**. 2. Information, such as data, which has been scrambled in some manner. Also called **encrypted** (2). 3. Program instructions which have been written.

**encoded data** Data which has been **encoded**. May be used, for instance, where privacy or security is a concern. Also called **coded data**, or **scrambled data**.

**encoded signal** A signal which has been **encoded**. May be used, for instance, where privacy or security is a concern. Also called **coded signal**, or **scrambled signal**.

**encoded speech** Speech which has been **encoded** (2), so that it can only be understood with a receiver with the proper circuits and settings. May be used, for instance, where eavesdropping is a concern. Also called **coded speech**, or **scrambled speech**.

**encoder** 1. A circuit, device, piece of equipment, program, system, or method utilized to **encode**. For instance, computer hardware and/or software used for such a purpose. 2. A TV transmitter, a circuit or device which transforms separate red, green, and blue camera signals into color difference signals, and combines these with the chrominance subcarrier. Also called **color encoder**, or **matrix** (3). 3. An electromechanical device, such as a shaft-position encoder which converts the rotations of a shaft into pulses. 4. A device which converts an analog quantity into a digital signal. 5. A device or piece of equipment which prints characters in a certain font and places them in specific locations, so as to facilitate being read by optical character recognition devices.

**encoding** That processes performed by an **encoder**.

**encrypt** Same as **encode** (2).

**encrypted** 1. Same as **encoded** (1). 2. Same as **encoded** (2). **encryption** The coding of information so that only the intended recipients can understand it. It is an extremely efficient method to achieve data security, and a code, or key, is used to convert the information back to its original form. Public-key encryption and secret-key encryption are the two most common types.

**encryption algorithm** A set of mathematic formulas utilized to scramble information, such as data, in a manner which only those with a key can decipher.

**encryption key** A series of binary digits or characters that are incorporated into data to encrypt it.

**end bell** 1. In a rotating motor, the part of the housing which supports the bearing and guards the rotating parts. Also called **end bracket**, or **end shield**. 2. A cable clamp which is affixed to the back of a plug or receptacle.

**end bracket** Same as **end bell** (1).

**end cell** In a storage battery, a cell which may be connected with the others, so as to adjust the overall voltage.

**end device** Same as **end instrument**.

**end effect** In an antenna, an effect due to capacitance at the ends of the radiators. Capacitive coupling with the

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transition of an electron from one energy level to another. 2. To make a transition (1).

**transition band** The interval of frequencies which surround a passband or stopband interface.

**transition factor** The ratio of the current delivered to a load whose impedance is not matched to the source, to the current that would be delivered to the same load if its impedance were fully matched. Also called **transition ratio**, **mismatch factor (2)**, **reflection factor (2)**, **reflectance (2)**, or **reflectivity (2)**.

**transition ratio** Same as **transition factor**.

**transition region** An area, zone, or interval between regions having different properties or characteristics. For instance, the region between n-type and p-type semiconductors, or the part of a spectrum between a passband and a stopband.

**transition temperature** 1. The temperature below which a material becomes superconductive. 2. The temperature at which a transition occurs. For instance, the temperature at which a substance changes phase, or the temperature at which the ferromagnetic properties of a substance become paramagnetic.

**translate** 1. To convert one language, such as a computer language, into another. 2. In computers, to convert from one format, such as that of data or a file, into another. 3. To convert from one format, function, system, or level, to another. 4. In computer graphics, to change the position of an image or object on the screen without rotating said image or object.

**translation** 1. The process of converting one language into another. 2. In computers, the process of converting from one format, such as that data or a file, into another. 3. The process of changing from one format, function, system, or level, to another. 4. In computer graphics, the process of changing the position of an image or object on the screen without rotating said image or object.

**translator** 1. A device, software, hardware, system, or person which converts one language into another. 2. In computers, an application which serves to convert one language into another. For example, from a high-level language into machine language, or from a natural language to a programming language. 3. In computers, that which serves to convert from one format, such as that data or a file, into another. 4. That which serves to change from one format, function, system, or level, to another. For example, a frequency translator, or a level translator.

**translucency** The quality or state of being translucent.

**translucent** That which transmits light, but is not completely transparent. The light diffusion present enables objects to be seen, but not clearly. Examples include porcelain and frosted glass. Optical density is a measure of the opacity of a translucent body, material, or medium.

**transmission** 1. The act or process of conveying a signal or any form of information, such as data, from one location to another, via wires, optical cables, waveguides, electromagnetic waves, acoustic waves, or any other means of communication. 2. The transmission (1) of data. 3. A specific instance of transmission (1) or transmission (2). 4. The signal, data, or other information conveyed via a transmission (1) or transmission (2). 5. Same as transmittance. 6. The broadcasting of TV signals.

**transmission band** A frequency interval within which a signal is transmitted or passed. A frequency-sensitive device, such as an amplifier or filter, may have multiple transmission bands. Also called **passband (1)**.

**transmission channel** A path along which information is transmitted. For instance, a fiber-optic link carrying data between nodes of a network, or a bus between computer devices. Also called **channel (1)**.

**transmission coefficient** Same as **transmission ratio**.

**Transmission Control Protocol** Same as TCP.

**Transmission Control Protocol over Internet Protocol** Same as TCP/IP.

**transmission convergence sublayer** In ATM, a sublayer within the physical layer that prepares cells for transmission. Its abbreviation is TCS.

**transmission electron microscope** An electron microscope in which the electron beam is passed through a thin sample. Such microscopes can achieve resolutions of better than 1 angstrom. For reference, the smallest atom, that of hydrogen, has an approximate width of 1 angstrom. This contrasts, for instance, with a scanning electron microscope, in which the electron beam is scanned over the surface of the specimen. Its abbreviation is TEM.

**transmission electron microscopy** The use of transmission electron microscopes to view and analyze specimens. Its abbreviation is TEM.

**transmission factor** Same as **transmission ratio**.

**transmission gain** 1. An increase in the strength of a signal during its transmission from one point to another. Usually expressed in decibels. 2. **Transmission gain (1)** expressed as the ratio of the power at the second or reception point, to the power at the first or transmission point.

**transmission grating** 1. A surface with many fine parallel lines, grooves, or slits, which are extremely close together and which serve to pass certain wavelengths of light. Used, for instance, in lasers. 2. In a waveguide, fine parallel lines which serve to pass certain types of waves.

**transmission level** For a given point of a transmission line or system, the ratio of the signal power level at a reference point, such as the origin of said line or system. Usually expressed in decibels. Also called **relative transmission level**, or **relative power**.

**transmission line** 1. A physical medium, such as a wire, cable, or waveguide, which serves to transmit or otherwise convey signals, data, electricity, or electromagnetic radiation between points. Examples include communication lines, power lines, and antenna transmission lines. Also called **line (2)**. 2. One or more wires, cables, or conductors which serve to supply electric power, especially AC power. 3. A transmission line (1) utilized for communications.

**transmission line analyzer** A device which monitors a transmission line to help make sure that it is functioning properly, and when this is not the case, to help remedy this.

**transmission line balance** Also called **line balance**. 1. The extent to which the electrical characteristics of two conductors in a transmission line are similar. Also, the degree of electrical similarity between a conductor and ground. The greater the balance, the lesser the extraneous disturbances, such as crosstalk and hum. 2. A device, such as a balun, utilized to help achieve transmission line balance (1).

**transmission line equalizer** An equalizer incorporated into a transmission line. Used, for example, to counteract distortion, compensate for deficiencies, or shape a frequency response to fit the requirements of a given transmission medium. Also called **line equalizer**.

**transmission line impedance** The impedance a transmission line presents between its terminals. Also called **line impedance**.

**transmission line level** The level of a signal at a given point of a transmission line.

**transmission line loss** A loss, such as that of energy, in a transmission line, such as an antenna feed. Also, the magnitude of any such losses. Also called **transmission line losses**.

**transmission line losses** Same as **transmission line loss**.

**transmission line matrix** A time-domain computational method for modeling electromagnetic wave interactions.

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